

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

1. (currently amended) An indirect x-ray image detector suitable for radiology, comprising an active matrix substrate with scanning and read-out circuits, wherein over said active matrix substrate there is deposited a photoreceptor made of a co-planar thin layer of amorphous selenium based multilayer structure of n-i-p or p-i-n type, wherein the n-layer is a hole blocking layer, the p-layer is an electron blocking layer and the i-layer sandwiched between the n and p layers is an amorphous selenium layer doped with chlorine and arsenic and wherein each of the n and p layers is less than 1 μm in thickness, said photoreceptor being covered with a light-transparent biasing electrode on top of which there is provided an x-ray conversion scintillator.
2. (previously presented) An x-ray image detector according to claim 1, in which the active matrix substrate is a two dimensional array of thin film transistors (TFT) associated with a storage capacitance and having conduction pads with electric connection to the photoreceptor.
3. (previously presented) An x-ray image detector according to claim 2, in which the storage capacitance is a part of the TFT architecture.
4. (previously presented) An x-ray image detector according to claim 2, in which the storage capacitance is an integral part of the photoreceptor.
5. (previously presented) An x-ray image detector according to claim 2, in which the TFT are made of amorphous silicon.
6. (cancelled)
7. (currently amended) An x-ray image detector according to claim 6 1, wherein the i-layer of amorphous selenium is doped with 1-100 ppm of chlorine and 0.1 - 5% by wt. of arsenic.
8. (currently amended) An x-ray image detector according to claim 6 1, in which the n-layer is a thin selenium layer doped with an alkaline metal or an oxide or halogenide of said metal.
9. (previously presented) An x-ray image detector according to claim 8, in which the alkaline metal is selected from lithium, sodium, potassium and cesium.

10. (currently amended) An x-ray image detector according to claim 6 1, in which the p-layer is a thin layer of arsenic enriched amorphous selenium.
11. (previously presented) An x-ray image detector according to claim 10, in which the arsenic enrichment of the p-layer is 1-38% by wt.
12. (cancelled)
13. (cancelled)
14. (previously presented) An x-ray image detector according to claim 1, in which said thickness of the multilayer structure is 5 to 20 μm .
15. (currently amended) An x-ray image detector according to claim 6 1, in which the light transparent biasing electrode is a co-planar indium tin oxide (ITO) layer positioned on top of the amorphous selenium based multilayer structure.
16. (currently amended) An x-ray image detector according to claim 6 1, in which the amorphous selenium based multilayer structure is of the p-i-n type and the light transparent biasing electrode is set to a negative potential to provide the TFT with high voltage protection.
17. (currently amended) An x-ray image detector according to claim 6 1, in which the amorphous selenium based multilayer structure is of the n-i-p type, and wherein a high voltage protective device is also provided shunting the storage capacitance.
18. (previously presented) An x-ray image detector according to claim 1, in which the biasing electrode also serves to match indices of refraction of the scintillator and the amorphous selenium based multilayer structure.
19. (previously presented) An x-ray image detector according to claim 1, in which the amorphous selenium based multilayer structure is optimized for electrical transport where dark current is below $200\text{pA}/\text{cm}^2$ and residual image is less than 5%.
20. (previously presented) An x-ray image detector according to claim 1, in which the scintillator is made of a material selected from cesium iodide doped with sodium, or from a material selected from barium fluoride, calcium tungstate and sodium iodide, emitting in the blue spectrum.
21. (previously presented) An x-ray image detector according to claim 1, in which the photoreceptor of the amorphous selenium based multilayer structure, the biasing electrode and the scintillator are enclosed in a housing providing environmental, electric and mechanical protection.